

CLAIMS

We Claim:

1. A method for generating low delay video streaming, the method including the steps of:

5 inputting the bit rate desired for outputting the received video stream into a buffer;

determining the size of said buffer according to said bit rate;

adjusting said bit rate; and

repeating the steps of determining and adjusting thereby to output the

10 video stream at the highest bit rate consistent with optimum levels of quality for a pre-determined period of delay.

2. A method according to claim 1, wherein said step of determining comprises the step of:

defining the "Current_Pointer" position;

15 wherein "Buffer Pointer" – "Delta_Buffer_Pointer" < "Current_Pointer" < "Buffer Pointer" + "Delta_Buffer_Pointer".

3. A method according to claim 1, wherein said step of varying comprises the steps of:

determining whether the "Current_Pointer" is within the range

20 appropriate to the current bit rate; and

if the "Current_Pointer" is within said range, recording a plurality of measurements of the time taken for a message from the server's transmitter to the client's receiver and back again to the transmitter (RTT); and

if the "Current_Pointer" is within said range, increasing the bit rate.

4. A method according to claim 3, wherein said step of varying further comprises the steps of:

if the "Current_Pointer" is lower than the increased current bit rate

range, reducing the bit rate.

5 5. A method according to claim 1, wherein said step of varying comprises the steps of:

determining whether the "Current_Pointer" is within the range

appropriate to the current bit rate; and

if the "Current_Pointer" is lower than said range, reducing the bit rate.

10 6. A method according to claim 1, further comprising the steps of:

assigning a header to a first frame of a series of frames of a video

stream to be encoded;

allocating a period of time to said first frame before encoding, said

period of time corresponding to the delay time of said first frame;

15 compressing said first frame; and

repeating said steps of assigning, allocating and compressing for each

subsequent frame to be encoded.

7. A method according to claim 6, further comprising the steps of:

transmitting said encoded series of frames to a buffer located at the

20 client site;

adjusting the size of said buffer in response to a dynamically varying

bandwidth.

8. A method for smoothly displaying the frames of a video stream, the method including the steps of:

assigning a header to a first frame of a series of frames of a video stream to be encoded;

5 allocating a period of time to said first frame before encoding, said period of time corresponding to the delay time of said first frame;

 compressing said first frame; and

 repeating said steps of assigning, allocating and compressing for each subsequent frame to be encoded.

10 9. A method according to claim 8, further comprising the steps of:

 transmitting said encoded series of frames to a buffer located at the client site; and

 adjusting the size of said buffer in response to a dynamically varying bandwidth.

15 10. A method according to claim 9, wherein said step of adjusting comprises the steps of:

 inputting the bit rate desired for outputting the received video stream into a buffer;

 determining the size of said buffer according to said bit rate;

20 adjusting said bit rate; and

 repeating the steps of determining and adjusting thereby to output the video stream at the highest bit rate consistent with optimum levels of quality for a pre-determined period of delay.